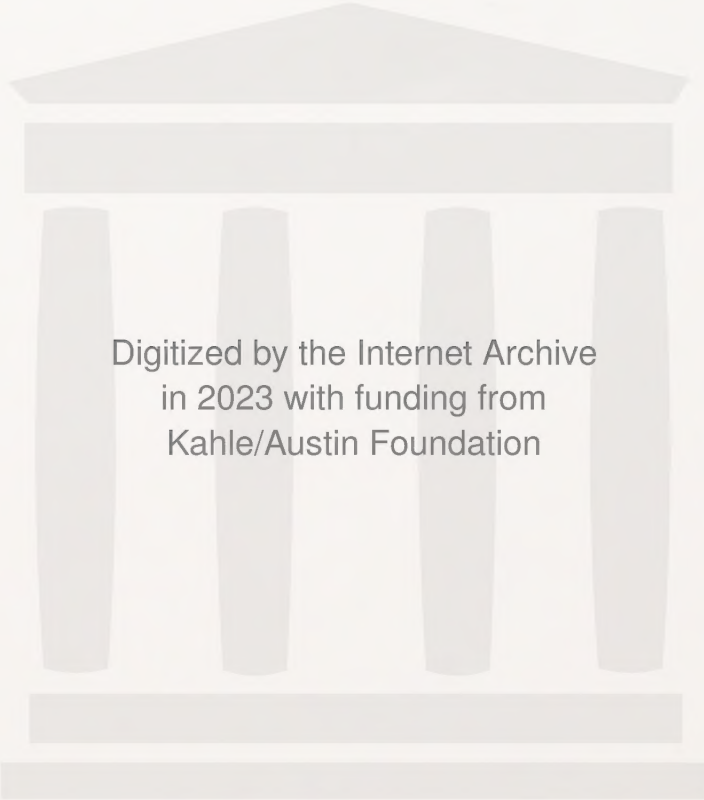


Caithness

A Field Guide



Castles Sinclair and Gurnigoe



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PREFACE

Caithness has often been described as "The Lowlands beyond the Highlands". This is an apt description of much of this triangular county, a low-lying windswept landscape chiselled from ancient sedimentary rocks (sandstones and flagstones) that were deposited some 370 million years ago in a vast freshwater basin known to geologists as Lake Orcadie. In its waters swam the fish whose fossil remains have become known throughout the world. From these same sedimentary rocks arose the flagstone industry which carried the famed Caithness "flag" around the globe.

To the south and west of the sandstones and flagstones of lowland Caithness is a much higher relief carved out of conglomerates and older crystalline rocks. The resulting hills of Scaraben, Morven and Maiden Pap cut a bold silhouette against the southern sky.

Undoubtedly the most dramatic scenery in Caithness is found along its coastline where there are displayed a magnificent variety of cliff forms with caves, geos, arches and stacks that contrast with the sheltered inlets and sweeping sandy bays.

On the massive cliffed buttresses of the deeply etched coastline are high densities of breeding birds, giving some of the finest seabird colonies in Britain, with great numbers of Guillemots, Razorbills, Kittiwakes and Puffins. The predatory Great Skua and Arctic Skuas are now a more common sight as they patrol the coastline on constant vigil for the easy meal. Other environments also offer much to the bird watcher: Ringed Plovers, Dunlin, Purple Sandpipers and Turnstones forage along the tideline, while the vast stretches of moorland carry fairly high numbers of breeding waders. Moreover Caithness is a good staging post for migrants and many exotic species have been recorded.

The great diversity of habitats, the northern latitude and generally cool climate offer a fascinating cross-section of plant life that ought to make the county botanically better known.

The various and varied environments that produce such a profusion of plant life are also host to about a dozen species of butterflies and innumerable types of moths.

Caithness is steeped in antiquity: remains from Middle Stone Age times have been found on the coast; our earliest farmers, of the New Stone Age, built these massive burial tombs known to us as chambered cairns. Later peoples are believed to have set up the stone circles and the enigmatic stone rows. The most typical of our prehistoric remains is the fortified tower known as the broch. Around a third of the known 510 brochs in Northern Scotland are found in the county. Although some regard the broch as an early form of castle, it was the Norse intruders, who first came here in the 8th or 9th centuries, that introduced the first true form. Fine examples from this early phase and good representations of later periods are found throughout Caithness.

Such a wealthy heritage has long attracted the wonder of local people. It led to the establishment of a Scientific Society and a Society for Natural History in the 19th century. In the early part of this century there was a Caithness Field Club which was revived in 1967. Many of its members have published articles in its Bulletins. It is good to see this idea expanded into a collection of seven contributions by people who have patiently studied and researched the rich store of our natural and human history. To them, and others like them, all of us should be grateful.

THE OLD RED SANDSTONE OF CAITHNESS

The visitor entering Caithness, whether it be by road or rail, will be immediately struck by the complete change in the pattern of the landscape compared with that of adjacent Sutherland, or, indeed of the whole of the Northern Highlands. This is because almost the whole of Caithness consists of sedimentary rock of Devonian Age known the world over as the Old Red Sandstone.

These sedimentary rocks were laid down about 370 million years ago in a basin in the crystalline rocks of the Northern Highlands. In those days Caithness resembled the desert lands of Nevada and Utah, familiar from the films of the Wild West, where bare and rugged mountains were interspersed with wide areas of dusty desert with, here and there, bodies of water of greater or lesser size, from mere ponds to vast rippling lakes. What made these lakes important was that they were the homes of some of the world's earliest fishes. Small wonder that the Devonian was called the Age of Fishes.

Entering the county on the A9 road the visitor first passes over the Ord, where porphyritic granites of Lower Devonian age outcrop along the roadside and form the great rounded hills of the Ord. The first outcrops of the Old Red Sandstone are to be seen at Ousdale where red and chocolate coloured shales have yielded the remains of fishes and the tracks of large invertebrate animals. Between Ousdale and Berriedale there are outcrops of breccia (meaning broken) and red sandstones. Breccias look like nothing so much as concrete, consisting of angular fragments of rock in a matrix.

At Berriedale the visitor will first see the grey flaggy rocks so typical of the Middle Old Red Sandstone of Caithness. Fossil fishes of this age have been found at Berriedale. Near the top of Berriedale Braes one can see the large valley of the Berriedale River which was probably formed during the Devonian period and, beyond the white crystalline quartzite mountain of Scaraben.

North of Dunbeath, near the prominent knoll of Knockinnon a road

cutting again reveals rocks of the Middle Old Red Sandstone which yielded innumerable fossil fishes when the cutting was being made. The sedimentary nature of the rocks is very clear in this cutting. Little can be seen of the rocks from here to Wick unless a detour is made. One such, at Sarclet, will reveal again a fragment of the Lower Old Red Sandstone. At Wick a detour can be made to South Head where in old seashore quarries, a fish bed can be discerned in the cliff rising from the "Trinkie Pool" a part natural open air swimming pool, to near the top of the cliff.

A visit to Castles Sinclair/Girnigoe reveals some of the fine cliff scenery typical of the Middle Old Red Sandstones whilst, at Ackergill Shore, the reefs are also of that age and fossil fishes can occasionally be found.

From Rough of Stain to Freswick the only good exposures of rock require a detour from the A9. One such is at Keiss with its romantic tower perched right on the edge of the cliff. On the north side of Freswick Bay we again find a good coastal section but here, in contrast to the normal grey colour, the rocks are red. These belong to the uppermost part of the Middle Old Red Sandstone — the John O'Groats Sandstones, but these are best seen at John O'Groats itself where the whole shore consists of reefs of red rocks. Here, too, fossil fishes have been found together with enormous vertebrates one of which must have been almost 2 metres in length.

At Huna, going west on the A836, the rocks are again grey and contain fish fragments whilst at Gills Bay, where the seal colony is to be seen, we are again on the red rocks of the John O'Groats Sandstone. At St John's Point where there is a fine promontory fort, we are again in the grey flaggy rocks of the Middle Old Red Sandstone. These continue up to the striking promontory of Dunnet Head. Here we can see a reversed fault running roughly from Brough to Dunnet, since the whole of Dunnet Head consists of red and yellow sandstones of Upper Old Red Sandstone age. These rocks, too, have yielded fragments of fossil fishes, but to a lesser degree than the Middle Old Red Sandstone.

From Castletown right round to Reay there are reefs and cliffs of grey, flaggy Middle Old Red all, more or less, fossiliferous.

Immediately to the west of Reay the scenery again begins to change and we see the landscapes beginning to appear which are typical of the crystalline rocks. In the quarry on the right hand side of the A836 going west we can again see the acid crystalline rocks of the Northern Highlands. Here, the rocks are diorite with veins of pink pigmatite with large crystals of feldspar and mica.

The visitor arriving by rail leaves the Strath Kildonan/Strath Halladale valleys and, at Altnabreac, enters the Caithness plateau, a peneplain which stretches right down to the Atlantic coast. The dreariness of the landscape is relieved by the vast amount of wild life which can often be seen by the side of the railway. This plateau is the result of a planing action which took place before the Ice age. The first real relief is Ben Dorrery and Ben Freiceadain (the mountain of the watching) with its splendid Iron Age fort. The visitor, however, can see little of the rocks until he arrives either at Thurso on the north coast or Wick on the east.

When examining the rocks themselves it will be seen that they consist of different kinds of sediments and further examination will show that the types of sediments repeat each other. In other words they show a cyclic pattern known as a cyclothems. These cyclothems have four main units together making up a total thickness of about 15 metres. Starting from the base we have

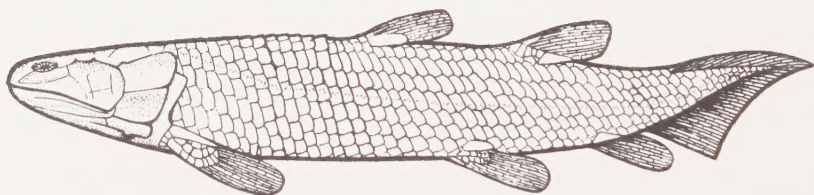
1. Impure Limestones
2. Flagstones
3. Mudstones with sandy partings, frequent ripple marks, and syneresis cracks which resemble worm burrows. There is often a shiny horizon near the top.
4. Mudstones with sandy partings, syneresis cracks and desiccation polygons.

These cycles repeat over and over again to give a thickness of rock which must be of the order of 3 thousand metres in the Middle Old Red Stone. The fossil fishes are normally found only in unit No 1 of the cyclothem.

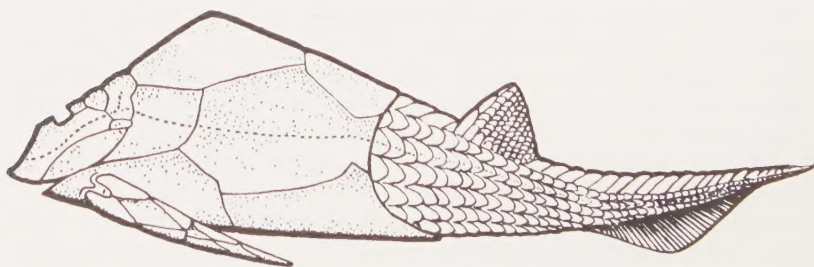
The fossil fishes are, for the most part, totally unlike modern fishes. Some are bizarre in the extreme, being covered in bony armour. Some of them even resemble the invertebrates which inhabited the lakes of those days, such as pterichthyodes. Others again were graceful but had long sharp spines which supported their fins as a mast supports the sails of a boat. Others were eel-like but had bony scales and bony armour on their heads such as Osteolepis.

Most of these fishes became extinct at the end of the Devonian though the osteolepis are almost certainly near the main stream of evolution which led to the land animals. The only exceptions were the lung fish whose descendants live for the most part, today, in environments which are subject to periodic drought and are able to survive for long periods. The modern lung fish are not so very far removed from their Devonian ancestors of 370 million years ago.

Those wishing to know more about the fossil fishes should consult "The Fossil Fishes of the North of Scotland" by the same author. This is available at good bookshops and at the Wee Shop at Scrabster.



Osteolepis — a fish which lived in the Devonian "Lake Orcadie" 370 million years ago. The name means "bony scales"



Pterichthyodes — an aberrant, heavily armoured fish which lived in the Devonian "Lake Orcadie" 370 million years ago

CAITHNESS PLANT LIFE

The fascinating plant life of the county is not well known, yet it is readily accessible to the visitor and well worthy of investigation. It represents in one aspect the northern extremity of the British Mainland, in another, its proximity to the Arctic Circle, in a third aspect its proximity to the Atlantic Ocean.

The climate has a dominating influence on the range of plants which can grow. A plant must be able to survive cold winters and cool short summers. The ability to ripen seed during the summer is probably one very important consideration. Wind exposure is a factor for trees and other tall plants. If the county were free from human interference it would grow a thin covering of birch, rowan, elder and willow, with hazel and alder in a few suitable places and a scattering of aspen. This would not mature into a climax forest of oak or pine as it might further south. The variation of plant life within the county is dominated by habitat features. The most obvious difference is between the acid peaty soils and the richer neutral soils, for there are extensive areas of both. This corner of Scotland was once known as the "Granary of the North" for the good reason that the clay soil of the north and east part of the county is excellent ground for grain, sheep and cattle farming — and equally excellent for the plant hunter.

The burns, lochsides, road verges and rocky outcrops of this area have an extreme northern version of the farmland and fenland flora of the rest of Britain. In stark contrast the areas with acid peaty soil are not of economic value for farming. The areas to the south and west of the county are thus a splendid wilderness of lochs, burns and peat-moors which at first glance seem botanically dull, but are nevertheless, rewarding to those prepared to roam widely and look closely. The other major habitat in the county is the seashore, which is scenically spectacular and botanically related closely to the arctic/alpine environment. Here one may encounter plants not found in more southerly parts of Britain, and alpine plants living at sea level.

The Grasslands

The grasslands have been formed from a soil of finely ground Old Red Sandstone. They are generally neutral rather than acid, but in places rich seams of calcium occur in the base rock giving rise to flushes of lime-rich soil where underground springs arise. These flushes are a major source of the interesting plant species. Typical places are Loch of Mey, Loch Watten, Wick Riverside, Thurso river valley and Dirlot.

The drier parts of the grasslands are dominated by two umbellifers — the Logweed (*Heracleom sphondylium*) and cow parsley (*Anthriscus sylvestris*), by members of the Pea family — tufted vetch (*Vicia cracca*), meadow vetching (*Lathyrus pratensis*) and bird's foot trefoil (*Lotus corniculatus*), by two thistles — the spear thistle (*Cirsium vulgare*) and the creeping thistle (*Cirsium arvense*). The common grasses are rye-grass (*Lolium perenne*), Cocks-foot (*Dactylis glomerata*), Yorkshire fog (*Holcus lanatus*), tufted hair-grass (*Deschampsia Caespitosa*), bent grasses (*Agrostis* sp.), rough meadow grass (*Poa trivialis*) and crested dog's tail (*Cynosorus cristatus*). One interesting scarcity is the smooth meadow-grass (*Poa pratensis*) which is replaced by the abundant spreading meadow-grass (*Poa subcaetulea*). Amongst this dominant and vigorous sward the beautiful northern marsh orchid (*Dactylormiza majalis* ssp *occidentalis*).

Wetter places are dominated by the soft rush (*Juncus effusus*), meadowsweet (*Filipendula ulmaria*) and reed canary-grass (*Phalaris arundinacea*) with commonly marsh marigold (*Caltha palustris*) and yellow flag (*Iris pseudacorus*). A notable plant in Caithness and Orkney in this habitat is the Magellan ragwort (*Senecio smithii*) which is a plant of Southern Chile and Patagonia which occurs in Caithness in wet places beside old crofts. It is not known how it got there, but one may surmise that it was brought by these men who left the croft for the Antarctic whaling fleets. Perhaps it had some reputed medicinal property which made it worth nursing a root through the tropics, back to Caithness, and how strange that only the men of Caithness and Orkney developed this habit!

The very wettest soils have willow shrubs (*Salix atrocinerea*), (*Salix aurita*) and alder (*Alnus Glutinosa*) with a carpet of water forget-me-not (*Myosotis scorpioides*) and marsh cinquefoil (*Potentilla palustris*). In one such place grows the Scottish small reed (*Calamagrostis scotica*) in its only locality in the world. Here it grows among the narrow small-reed (*Calamagrostis stricta*) a slightly less rare species. The plant was discovered by the local botanist Robert Dick who called it the "Lapland Reed" in the first half of the nineteenth century. Robert

Dick's name is also closely linked with another rare grass of the wet grassland habitat. This is the Holy grass (*Hierochloa odorata*). This aromatic grass flowers early — usually during April when it is fairly prominent among the dormant plants around it. It is fairly frequently found in continental Europe but is rare in Britain. Its first British recording was in Angus in 1812 by a remarkable man George Don (1764-1814). He was an exceedingly enthusiastic and able planthunter and gardener who took the hills of Central Scotland by storm and established the worth of Ben Lawers, Glen Clova, Caenlochan and other superb alpine plant localities. However, he sometimes mixed up his garden plants and his specimens from the mountains, so that other botanists became suspicious of all his records; thus some — including Holy grass — were removed to the 'doubtful' category of the London Catalogue of British Plants. Robert Dick of Thurso first found the plant on the banks of the Thurso river around 1834 and this eventually became known to Professor J. H. Balfour who was Professor of Botany at Edinburgh University from 1845-1879. Balfour persuaded Dick to write a short paper which was read before the Botanical Society of Edinburgh. This discovery became well known among British botanists and Dick was much in demand to provide specimens for collectors. Thurso river remained the only site known in Britain for many years, although it is said that Dick also found it on the banks of the Forss river. Eventually, in 1899 another site was found in Kirkcudbright, then in Renfrew, Lough Neagh and Orkney. Many of George Don's finds were eventually verified, but Holy grass has not been re-discovered in Angus, although Dick ensured it a place in the "London Catalogue".

Another variety of the riverbank is known locally as the "Wick sedge" — (*Carex recta*). It was first noticed by a local botanist J. Grant of Wick, growing along the banks of Wick river. He sent a specimen to the British Museum and it was pronounced new to the British Isles. There is another similar sedge in the same river, (*Carex aquatilis*) the Water sedge and Grant also discovered the hybrid cross (*Carex aquatilis*) x (*recta*), which is named after him (*Carex* x *grantii*). *Carex recta* occurs in just a few river estuaries in the northern hemisphere, and has been found in the Beaulieu and Oykel rivers in more recent times. The hybrid *C. x grantii* is still known only from the Wick river, there being no other sites in the world.

The Peaty Moorlands

Large areas of Caithness, predominantly to the south and west, are

covered in a layer of peat. The peat formed mostly around 500 B.C. when there was a dramatic change of climate. Formerly it had been dry and fairly cool, allowing birch-scrub forest to cover much of the ground. It then became very wet so that the soil was saturated continually and the normal process of decay and humus formation was halted, the later generations of plant remains simply accumulating in deep layers which engulfed the remains of the trees.

In the driest places the birch-scrub remained until the agricultural developments of the early nineteenth century demanded land for sheep grazing. The sheep graze young birch trees, consequently much of the remnant birch is 160 years old or more, and the woods have not prospered. Later the Victorian enthusiasm for deer and grouse moor suppressed trees by burning. Now the birch are confined to the river valleys of the east coast, particularly the Dunbeath, Berriedale and Langwell valleys, and the lesser burns of Latheronwheel and Lybster. Beneath the trees is a characteristic ground cover of bracken (*Pteridium*), wood sorrel (*Oxalis acetosella*), great woodrush (*Luzula sylvatica*), greater stitchwort (*Stellaria holostea*) and harebell (*Campanula rotundifolia*). Such a ground cover often persists on sites of former birchwood. Other trees of the community are rowan (*Sorbus aucuparia*), bird cherry (*Prunus padus*) and aspen (*Populus tremula*), with hazel (*Corylus avellana*) in the more mineral-rich places and alder (*Alnus*) and willow (*Salix aurita*) in the wetter places. These are the most northerly birchwoods in the British Isles and it is interesting to note which species can survive there. Bloody cranesbill (*Geranium sanguineum*), moschatel (*Adoxa*), melancholy thistle (*Cirsium heterophyllum*) and perforate St-John's-wart (*Hypericum perforatum*) are clearly at their northern limit and scarce, while several species in similar woods in East Sutherland fail to occur at all. However, pyramidal bugle (*Ajuga pyramidalis*), burnet rose (*Rosa pimpinellifolia*), tea-leaved willow (*Salix phylicifolia*), alpine buckler-fern (*Dryopteris assiniifolia*) and Don's couch (*Agropyron donianum*) are there to represent the special northern element of the flora.

The ground with moist peat has a dominance of heather (*Calluna*) which is promoted by the regular burning of the ground. This practice has its origins in the skilled and controlled burning of strips of ground by grouse keepers to provide young heather shoots for food alongside deep heather for cover. Since heather is a rapid coloniser of bare burnt peat it develops rapidly to a monoculture which is of benefit to grouse rearing. The burning practice has degenerated over the years as the number of skilled gamekeepers has declined. Crofters now burn with

minimal control large areas of moor with such regularity that the soil minerals have been lost in smoke and the peat is dry, cracked and eroded. The vegetation is heather, heath rush (*Juncus squarrosus*) and two indigestible grasses — mat-grass (*Nardus stricta*) and purple moor-grass (*Molinia*). Dear sedge (*Scirpus cespitosus*), cotton sedge (*Eriophorum* sp.), wavy hair grass (*Deschampsia flexuosa*) and hard fern (*Blechnum spicant*) break the monotony, while two pretty flowers tormentil (*Potentilla erecta*) and milkwort (*Polygala serpyllifolia*) add some colour to the scene.

The wet places on the moor are usually fascinating places to visit, and there is a wide range of superb wetland types in Caithness. When the deep peat is totally waterlogged it is usually broken up by small pools called “Dubh-lochs”. These are peaty pools often steep sided and up to 10 metres deep, filled with dark brown water. If they are in a mineral-poor area the banks will be lined with sphagnum moss, cotton sedge and bell-heather (*Erica tetralix*). But often the dubh-loch has formed because there is a mineral-rich spring below the peat bringing calcium and magnesium to the scene. Here the dubh-loch banks are green with grass, soft rush (*Juncus effusus*) and marsh cinquefoil (*Potentilla palustris*). The white water-lily (*Nymphaea alba*), bog-bean (*Menyanthes trifoliata*), water horsetail (*Equisetum fluvatile*) and bottle-sedge (*Carex rostrata*) grow in the water. The less common delights of this habitat are the small cranberry (*Vaccinium microcarpon*), white beak-sedge (*Rhynchospora alba*), many stalked spike rush (*Eleocharis multicaulis*) and slender sedge (*Carex lasiocarpa*). Particularly rich dubh-loch areas occur at Sheilton, Blar nam Faoileagh and Hollandmey.

The larger lochs in the moorland are often acid because they contain water borne in from the surrounding peat. The water borne flora is then sparse with perhaps pondweeds (*Potamogeton natans* and *polygonifolius*), bulrush (*Schoenoplectus lacustris*) and water milfoil (*Myriophyllum alterniflorum*). Plants with a westerly distribution such as water lobelia (*Lobelia dortmanna*) and white water lily (*Nymphaea alba*) are rare in Caithness but common nearby in West Sutherland. Less acid or slightly mineral-rich lochs also occur, the loch of Watten, Heilan, Yarrows and Wattenon being examples. Here the conditions encourage a water horsetail (*Equisetum fluvatile*), reed canary grass (*Phalaris arundinacea*), bur-reeds (*Sparganium erectum*, *emersum* and *minimum*), floating marsh-wort (*Apium inundatum*) and spike-rush (*Eleocharis palustris*).

The Seashore and Arctic-Alpine Areas

It is a feature of Caithness that these two subjects can be considered together. The basic similarity is that both are environments in which the common plants of grassland and peat-moor have difficulty in surviving and their place is taken by hardy specialised plants which cannot survive competition from the common weeds. It happens that the arctic-alpine flora is well established in both of the habitats. The cool summers and harsh winters are the important feature of the mountain-tops, which rise only to 705 metres (2313 feet) on Morven. Once again the rock type dominates the vegetation because the mineral salts needed for plant growth are released from the soluble rocks of Smean, Maiden Pap and parts of Morven, while the quartzite of Scaraben and the Irishman is unyielding and almost barren. Thus Scaraben has a thin layer of peaty soil bearing dwarfed heather, cowberry (*Vaccinium vitis-idaea*) and crowberry (*Empetrum hereaphrodytum*) with a scattering of golden rod (*Solidage virgurea*), mountain azalea (*Loiseleuria procumbens*) and stiff sedge (*Carex bigelowii*). The more mineral rich places yield, particularly in rock crevices, the rare rock whitlow-grass (*Draba norvegica*), alpine saxifrage (*Saxifraga nivalis*), green spleenwort (*Asplenium viride*), starry saxifrage (*Saxifraga stellaris*) and mountain sorrel (*Oxyria digyna*). Alpine lady's-mantle (*Alchemilla alpina*) and alpine bearberry (*Arctous alpina*) are rather more widespread.

On the seashore alpine saw-wort (*Saussurea alpina*) grows on the cliffs near Thurso, while alpine bearberry and dwarf willow (*Salix herbaceae*) occur on Dunnet Head. Here, interestingly, the dwarf willow hybridises with the creeping willow (*S. repens*), a very rare combination in Britain. On the shores of north-west Sutherland a wider range of alpinos occur; notably the purple oxytropis (*Oxytropis halleri*) which used to occur at Dounreay, but has not been seen there for more than thirty years, while the yellow mountain saxifrage (*S. azoides*) has never been recorded although it occurs a few miles west of the boundary.

The arctic element of the seashore vegetation is most obviously represented by the Baltic rush (*Juncus balticus*) which is to be found in several sandy places around the coast, most obviously on Dunnet and Keiss links, where it forms several hectares of rush turf. These two link areas also have the sub-arctic dandelion (*Iaraxacum platyglossum*), spring sedge (*Carex caryophyllea*) and mountain cat's-foot (*Antennaria dioica*). There is also, of course, the normal dune link flora which includes such delights as birdsfoot trefoil (*Lotus corniculatus*), kidney

vetch (*Anthyllis vulneraria*), red fescue (*Festuca ovina*), thyme (*Thymus drucel*), yellow rattle (*Rhinanthus minor*), seashore pansy (*Viola tricolor* ssp *curtisii*), buckshorn plantain (*Plantago coronopus*) and creeping willow (*Salix repens*).

The dune links are also an important site for the Scottish primrose (*Primula scotica*) which occurs in plenty at Keiss and Dunnet. It also inhabits a particular type of maritime heath on clifftops, notably at Sandside Head, Claredon, Noss Head and a scatter of other localities. It was first found on Holborn Head in the eighteenth century by a Mr Gibb of Inverness and subsequently found in Orkney and west Sutherland. This, however, is its total world distribution — it is one of a very few plants endemic only to Scotland. It is a very tiny primrose with mealy leaves and buds producing a cluster of a few pink flower heads atop a single stem. The first flowers appear in May with perhaps a second flowering in early July, then a more definite flowering in late August or early September.

Another notable group of seashore plants are the eyebrights (*Euphrasia* sp.) and there are some unusual species and hybrids in the north. The common plants are the Foula eyebright (*E. foulaensis*), *E. arctica* and *E. nemorosa*, all species with sub-arctic inclinations. *E. Marshallii* was found at Melvich in Sutherland originally, but occurs in Caithness too, along much of the north coast. At Reay a large-flowered hairy glandular eyebright once named *E. Brevipila* var *reayensis*, but now lost among the varieties of *E. arctica* in a recent revision of the names.

The cliffs of the county are scenically dramatic and the weathering of the Old Red Sandstone rock provides many horizontal and vertical fissures to make homes for hardy plants to the more sheltered parts. Here we may see voseroot (*Sedum rosea*), sea mayweed (*Tripleurospermum maritimum*), sea campion (*Silene maritima*) and Scots lovage (*Ligusticum scoticum*). The clifftops have a number of classic ecological habitats which can send a plant ecologist into raptures for reasons that few others understand — yet there are some obvious features — pure turfs of sea plantain, salt marshes 50 metres above the waves, rich heaths of crowberry with spring squill (*Scilla verna*) and northern marsh orchid (*Dactylorhiza purpurella*).

All these are there to delight the eye and decorate the tree-less landscape. Caithness is not so rich in exotic species as is Sutherland — its links with Orkney and the Baltic/Icelandic flora are stronger — and yet it has the special plants of Britain distinct from those of Scandinavia. It has its own special place in Nature's scheme.



Alchemilla alpina



Drosera rotundifolia



Primula scotica

BUTTERFLIES AND MOTHS OF CAITHNESS

Caithness, the northernmost county of the Scottish mainland, has a wide variety of unspoilt habitats, colonised by about a dozen species of butterflies and by innumerable different types of moths.

Moths make up 97% of the insect order Lepidoptera, the remaining 3% being butterflies. A rough guide to distinguishing a butterfly from a moth is that butterflies tend to have fine, knob-ended antennae or feelers, whereas most moths have feathery antennae, tapering to the tips. Also, while butterflies are usually out in sunshine, moths tend to be nocturnal, although there are some day flying moths.

Local moths range in size from the Death's head Hawkmoth, (so named as it bears a skull-like marking on its back), which is Britain's largest insect with a wingspan of 5½", to species of 'micro-moth' whose wingspan only measures ⅛" across.

Most people appreciate the graceful butterfly but many dismiss moths as being simply drab night-flying creatures that buzz around lights. In fact many moths are just as beautifully coloured as their more popular relations. There is even a family of gleaming metallic moths — for example, the Burnished Brass, the Silver Y and the Gold Spangle, all of which occur in Caithness. Even the very names of the moths are fascinating — the Rosy Rustic, the Grey Chi, the Nut-tree Tussock and the Frosted Orange can all be found locally.

Caterpillars are sometimes regarded by gardeners as enemies to be dispatched promptly between finger and thumb, but it is a fact that the vast majority are quite harmless, preferring to feed on wild plants and trees.

The following headings denote the main habitats of Caithness, and under each I describe typical butterflies and moths you could expect to find there.

Straths

Some of the best places to look for moths, butterflies and their caterpillars in Caithness, are the sheltered straths, or river valleys,

where small plantations of deciduous trees such as hazel, birch and rowan have grown, protected to some extent from salt-laden gales. The river banks are often overgrown with meadowsweet and bramble, which attracts still more species, and, in certain areas, deep seas of waving bracken, normally a windshy plant, develop, and then moths like the *Map-winged Swift*, whose caterpillars feed on bracken roots, can be found. This moth seems to be a favourite food of Great Tits, who can often be watched, deftly detaching the unwanted wings which flutter down to join the collection which gradually gathers under the Tit's favoured perch.

Berriedale, in the south east of Caithness has one such strath and here one *Six spot Burnet moth* has so far been found. No one has ever been able to repeat this discovery, but should you find one of these very striking crimson-spotted bottle-green and black moths with its thick black antennae, then local entomologists would be very interested. I am quite sure it is only a matter of time before the colony is discovered. Burnet moths favour sunny, south-facing banks, especially where trefoil and vetch is growing, as these plants feed the green, well-camouflaged caterpillars.

Another exciting discovery was made in recent years at Berriedale strath, when a colony of *Small Pearl bordered Fritillaries* was found there. These orange-brown butterflies, darkly spotted, are named for their resemblance to the flower, and like the flower, favour marshy places. Even in dull or wet weather this butterfly can be found sitting around the tops of rushes or ferns, and the spikey caterpillars feed on violet leaves.

Another member of the Fritillary family can be found much more commonly in Caithness — this is the *Dark Green Fritillary*, which is larger than the aforementioned species. This butterfly's wings are tawny, with leopard-like markings in dark brown, and the undersides of the hindwings are suffused with green, which explains the name. I have found this butterfly flying backwards and forwards, low over the surface of the burn in Latheronwheel strath, and also up and down the open sunny clearings of Rumster forest. It is possible to get a closer look at this striking butterfly when it settles, open-winged to feed on thistle or knapweed flowers, but approach cautiously as they are particularly wary and usually fly off strongly when aware of your presence. The black spiny caterpillars of this butterfly feed, like the Small Pearl bordered Fritillary, on violet leaves.

Where a river valley shelters tall spikes of Foxgloves, examine the flowers especially in July, and if you find one with a faded, dull

appearance, it could well turn out to be housing a caterpillar of the *Foxglove Pug* moth feeding on the stamens within. The tiny netted brown moth flies in May and June.

If brambles are to be found along the riversides then you may be lucky enough to find one of the prettiest of moths, called the *Peach Blossom*, whose deep brown forewings are beautifully patterned with pink blotches. The red-brown humpy caterpillar feeds by night on bramble leaves.

Where there are rowan trees, a summer evening walk, particularly in June, will nearly always reveal delicate little bright lemon-yellow *Brimstone* moths flittering about the shadowy leaves. This moth's caterpillar looks exactly like a knotty brown twig, so presents a real challenge to the searcher.

Another twig-imitating caterpillar can also be found in tree-grown straths. This is the larva of the Peppered moth, which is supposed to frequent birches although I have found it on wild roses. In Caithness, the Peppered moth's wings are a pale mottled silvery grey, giving ideal camouflage against grey-lichened tree trunks. However, in general this form of the moth is becoming rarer, as lichens cannot exist in the polluted air of heavily populated areas and so the modern, urban Peppered moth has succeeded in adapting to a sooty blackish form, in order to be camouflaged against blackened lichenless tree trunks. This is clear evidence of evolution by natural selection.

The *White Ermine* moth also tends to have a distinctive northern race. The usual form of the moth is snowy white, spotted with jet black, but in Caithness they often have a rich parchment-buff ground colour replacing the white, marked with the same black spots. This moth is common in the county, especially in the Mall in Thurso, where the bristly brown caterpillars, with a distinctive orange stripe down their backs, feed on low plants on the river banks. The Latin name for the moth means "fleet footed" because the caterpillar is such an extraordinarily rapid crawler!

There are two forms of the magnificent *Emperor* moth also, and both are found in Caithness. Although there do not seem to be any noticeable differences between the adult moths, they have quite different haunts and their larvae have different tastes and colouring. The most commonly found moorland race feeds on heather, and in this case the enormous, fat, emerald green caterpillars are studded with bright pink warts. The other form, which I found by the river near Thurso, favours meadowsweet, and their equally enormous, emerald green caterpillars are distinguished by having bright yellow warts.

Both the handsome caterpillars and the large moths with their grey and pink wings decorated with large blue-ish 'eye-spots' are very rewarding to find, study and release.

The male Emperor moth can detect females up to seven miles away! The scent given off by the female is one of the higher alcohols — merely a fraction of a gram exuded by the female attracts scores of males. This is very interesting to watch if you rear a female yourself.

Another moth which depends on this system of attracting a mate, and which can be found wherever there are hawthorn trees in Caithness, is the *Vapourer*. In this species the female does not have any wings at all, and as a mature tiny beetle-like adult, never leaves the pupa from which she hatched and lives on food consumed as a caterpillar, until she is discovered by the brown feathery-feelered male who follows her scent. She lays her eggs on her empty pupa case. When they hatch, the larvae feed on hawthorn foliage.

Their larvae are really exotic — the circus horses of the caterpillar world, and easy to spot even from a distance. They are violet grey, patterned with raised orange spots, with four yellow miniature shaving brushes along the back, with a tail-like dark plume of bristles at the rear and a pair of plumes nodding over the head. These plumes render them unpalatable to birds which is why they have no need to rely on camouflage for protection.

If you are lucky, you may find one of the Hawkmoth family in a strath where poplars or willows are growing. These trees attract the *Poplar Hawkmoth*, whose green, long pointed-tailed caterpillars can strip small branches of their leaves. The large moth, which tends to fly at night, is in various shades of grey and usually emerges in May. Hawkmoths take their name from their long wings and extremely swift flight.

Wasteground and gardens

As well as river valleys, overgrown weedy wasteground and also gardens are rich sources of butterflies and moths in Caithness. Undisturbed railway embankments and uncut hedgerows provide 'corridors' along which colonies of plants and insects can spread.

Wherever you find sorrel growing, particularly along the sides of country roads or railways, then you may well see the pretty *Small Copper butterfly*. This lively butterfly guards its territory from intruders, and can often be seen in battle with the Common Blue butterfly, which is equally territorial. The Small Copper uses a particular flower-head as an observation post, and when another butterfly — or even a

large bumble bee — passes near, it will dart towards the trespasser and hustle it away. One of its favourite perches, to which it will continually return, is the yellow ragwort, from mid-summer until autumn. It is a lovely little insect with a bright coppery iridescence to its wings. The stout caterpillars feed on sorrel and are very well camouflaged, with pink lines on their green bodies simulating the veins in a sorrel leaf.

In gardens, one of our commonest but nonetheless very beautiful butterflies, the *Small Tortoiseshell*, is often found feeding on buddleia or michaelmas daisies, while its caterpillars require nettles for their diet. Out in the countryside, the butterflies seem to be especially fond of feeding from golden clumps of marsh marigolds along burn-sides. Through the winter, Small Tortoiseshells commonly hibernate in a cool shed or unused room.

If you have gooseberry bushes in the garden, the chances are that you will be visited by the very pretty *Magpie moth*, whose voracious yellow and dark brown spotted caterpillar feeds on the leaves. The moth is basically white, patterned with bright yellow and black.

If you are also growing potatoes, then you may even find that the huge *Death's Head Hawkmoth*, like a winged conker, has flown in from the continent to use your garden to breed in. The fully grown caterpillar will be very large, about 6" or more long, with beautiful mauve stripes and black dots along its sides. One of these giant caterpillars will strip an entire potato plant, leaving only the bare stalks, but this is a small sacrifice in return for the pleasure of studying Britain's largest insect on your doorstep. The harmless moth has the strange ability to squeak like a mouse when threatened, and its name comes from a skull-like marking in white on its dark thorax.

A common moth that you are very likely to find in a Caithness garden, especially if a wild corner has been allowed to develop where such plants as groundsel, sorrel and dock can provide food for the large smooth dull green caterpillars, is the *Large Yellow Underwing*.

This moth flies at night usually, and during the day hides with its wings folded, looking very like a brown chip of wood, particularly if it is resting on a fence post. If you happen to disturb it, you will notice as soon as it flutters that it has beautiful apricot-yellow underwings outlined with chocolate brown. There are two types of this very familiar large moth in the county — the very dark northern form and also the lighter coloured southern form.

An even more strikingly handsome large moth which is known to most people, is the *Garden Tiger moth*, which again tends to frequent gardens where there are weeds for its caterpillars to feed on. The

caterpillars are known popularly as “woolly bears” or “hairy gran-nies”. They are large and dark brown, thickly clothed with long brown and greyish hair, which is an irritant to certain people and most birds. In fact, the cuckoo is the only bird who can tolerate this otherwise toxic caterpillar.

The adult Tiger moth is beautifully colourful, with forewings leopard-spotted in chocolate on cream, and hindwings vivid scarlet, bordered with large black spots. The adult moths have no tongue and do not feed, simply living on reserves built up as a caterpillar.

Moorland

Although it will be clear that butterflies and moths abound in local gardens and river valleys, it is not by any means only the sheltered lush areas of Caithness, that attracts them. Caithness has a huge expanse of wild, lonely moors which, when draped out to dry in summer, are decorated with nodding bog cotton and flaring sheets of heather. This is exactly the place to come on a bright sunshiney afternoon in mid-summer, to look for the strong rapid flight of the red-brown *Fox moth* males as they dash to and fro in search of the duller brown females which do not fly until nightfall. The caterpillar is easiest to find when fully grown, in autumn, when it can be found basking on warm days on its food plants, either heather or bilberry. It is quite easy to identify, being clothed with dense, short, bright fox-red hair.

Another typical moth of Caithness moors and hills is the large, dark Oak Eggar, or rather *Northern Eggar*, which is the form present locally. The Northern Eggar tends to be darker than its southern counterpart, with a yellowish or greenish patch at the base of the brown forewings in the male, and the bands on the wings are often greenish with unique outward twists.

Interestingly, several species of moths in Caithness tend to be darker in colour than is usual. It has been discovered that if pupas of southern caterpillars are put in the refrigerator for a few weeks, the colour of the resulting moths is darkened. I wonder if northern moths tend to be darker in order to absorb more of the weaker sun's heat?

The Northern Eggar caterpillar, like the Fox, feeds on heather but is rather larger. When fully grown they are dark violet brown, clothed with long brown fur and with broad velvety black ring divisions. In the north, their life cycle extends to 24 months, 12 of which are spent as a caterpillar. The southern form however, has a 12 month life cycle, presumably due to a kinder climate and more food, which enables growth to be completed within the year. In Caithness, the Northern

Eggar caterpillar hibernates the first winter after it has hatched while it is still quite small. It then feeds through the following summer and passes the second winter as a chrysalis or pupa, the adult moth emerging in the next summer.

I have found Northern Eggar caterpillars at the very summit of Morven, which at 2313 feet is Caithness's only mountain and doubtless the most exposed place in the county.

Less strenuous than conquering Morven is to stroll up one of the many moorland tracks which snake for miles through the heather, usually leading to peat banks where winter fuel is cut and dried. Along one such track near Reay at certain times in August, you can walk through clouds of tiny blue butterflies. These are the clear violet *Common Blue* males, the female butterflies being brown with a bordering of orange spots round the wings. The *Common Blue* also has a distinct Scottish form, said to be larger and more strikingly marked than those found in the remainder of Britain. The most unusual food plant of the tiny *Common Blue* caterpillar is bird's foot trefoil.

While out on the moors, another butterfly to look out for is the *Large Heath*, which is mainly found near blanket bogs and damp mosses, especially where cotton grass and purple moor grass grow, as these are the food plants of its bright green fork-tailed caterpillar. This delicately marked orangey-brown butterfly is worth studying, as drainage schemes and afforestation are eliminating it in some locations. The best time of year to see it is from late June until early August.

Coastline

If you decide to ramble along some of Caithness's beautiful coastline, beaten by the cold unpredictable Pentland Firth to the north, and, down the ragged, misty east coast, by the North Sea, you may be fortunate enough to see the very rare *Small Blue Butterfly*. This delightful little gem was, until recently, thought not to occur north of Aberdeen, but has since been found in Caithness. The *Small Blue* is Britain's smallest butterfly and is most common in southern England. Its caterpillars feed on kidney vetch and particularly favour ungrazed sea cliffs. The *Small Blue* adult butterflies are not really very blue at all — the male being dark brown with white fringes and overlaid with a blue gloss, while the female is simply smutty brown. However, these tiny butterflies are very special because they are restricted to only about twelve localities in the whole of Scotland, two of them being in Caithness.

When visiting Badbea, the site of a now-deserted coastal settlement

dating from the time of the clearances, I came upon another butterfly which seems to like the springy turf of cliff tops. It was the pretty little soft orangey brown *Small Heath*, whose green stripey caterpillar feeds on grasses.

A moth that you can be sure to find in large numbers at the coast, is the *Antler moth*, so named as it has white antler-shaped streaks across its brown wings. Particularly in August, this moth can be found visiting ragwort flowers on sand hills at Reay, Dunnet and Keiss.

Despite its name, the *Wood Tiger moth* chooses open ground and bleak situations for its haunt and makes a striking picture when seen out basking on sunny cliff tops. Both the male and female are very showily marked with bright yellow and chocolate brown and the hairy caterpillars feed on low plants like plantain and salad burnet.

Another member of the Tiger moth family which you may well encounter on a walk along the coastline is the *Ruby Tiger moth* or perhaps its jet black hairy caterpillar, which is distinguished by having a faint red line just discernible between its bristles, down the centre of its back. Neither the caterpillar nor the adult moth are really worthy of the pretty name, for in Scotland and particularly the far north, the moths are nearly as black as their larvae — they simply have a trace of red on the inner edge of the hindwings, while the southern form is much redder. The Ruby is probably the most commonly found member of the Tiger moth family in Caithness, possibly because its caterpillars are better able to withstand their winter hibernation. There is an astonishing record of a Ruby Tiger moth caterpillar, which, having been embedded in ice for at least a fortnight became active less than half an hour after being defrosted, and pupated shortly afterwards.

On a September visit to the little rocky cove at Gills, on Caithness's far northern coast, I once found in a salt-blasted stunted patch of nettles, a newly-hatched *Red Admiral butterfly*, drying out its crumpled red, black, white and blue wings. This was on a very bare windy site, with only a few feet of shingle between it and the open Pentland Firth, and serves to show that you can find butterflies and moths anywhere in the county, even in the unlikeliest place.

The Red Admiral migrates to this country from North Africa, but the specimen I found would have been the offspring of a migrant which had arrived earlier in the year, mated and laid eggs, which had developed into nettle-feeding caterpillars, which had in turn pupated, to hatch finally on this lovely blue and golden September afternoon. Sadly this Red Admiral would not have a very long life as they usually perish with the first frosts and do not survive the winter in this country.

Farmland

There are some species of butterfly and moth whose preferred haunt is the open, green soft sweeps of Caithness farmland. This is particularly true of *Green-veined White butterflies* which are a very typical sight, flittering even on sunless days, like blown scraps of paper, over damp meadows where they frequently stop to feed from the pretty pink flowers of Lady's Smock. The caterpillar usually feeds on the foliage of this plant, resting underneath the leaves and matching them perfectly. If it pupates on a green stem, then the chrysalis will almost invariably be green, but if the caterpillar chooses a shady place, then it will be grey or buff speckled.

Green-veined Whites are the country cousins of the less numerous *Small and Large* (or Cabbage) *Whites* which gardeners sometimes find laying eggs on cabbages or nasturtiums.

The *Meadow Brown* is another butterfly of grassy fields as its name suggests. This butterfly has a slow floppy flight, keeping rather low and frequently settling with the wings closed. The females lay their eggs on all types of grasses and the caterpillars are very hard to find, being exactly the same shade of green as the grass on which they feed. Scottish Meadow Browns are more boldly marked than usual, with larger eyespots on the forewings and brighter chestnut-brown ground colour.

Very typical of the silvery June nights in Caithness, when it never really gets dark, are the flocks of moth-hunting Blackheaded Gulls which skim silently just above the fields, twisting and turning, back and forth in the hazy sunset/sunrise. They are often feeding on *Ghost Swift* moths, which are themselves very much a part of midsummer nights. When seen through the dim light as a vague white shimmering just above the ground, it is easy to see how they acquired the 'ghost' part of their name. These are the pure white males of the species, which hover above the grass waiting for the yellow females to come along.

Most female moths release a scent which attracts males, but the reverse is true of Ghost Swifts. The males release a scent as they hover, and this, with their gleaming white blurring wings, attracts females. After mating the females lay up to 300 eggs each, dropping them randomly as they fly over the grass. The eggs hatch about two weeks later into long white, brown-headed caterpillars which burrow into the soil and feed on plant roots.

Forest

The Forestry Commission has introduced yet another habitat to

Caithness — that of the shadowy coniferous forest, the oldest and largest of which is Rumster in the east of the county. Here the smokey-brown *Grey Pine Carpet* moth has now become established, whose green and white striped caterpillars are cleverly designed to blend with the pine needles.

Another moth which has multiplied in Rumster forest is the *Barred Red*, whose name describes its appearance and whose tawny brown caterpillars match the tips of the Lodgepole pine twigs on which they feed.

Also in Rumster forest can be found especially large and strongly marked specimens of the pretty patterned *Green Carpet* moth. (Carpet moths are so named for their resemblance to the intricate patterning of Persian rugs.) No doubt more species of moths, new to Caithness are waiting to be discovered as the forest matures and as new forests are planted. Hopefully these will not be confined to the commercial soft woods, as deciduous trees attract so many more species. It is not only the trees themselves which attract insects, but also the shelter they provide. Sunny clearings in Rumster forest are, in some summers, very busy with large showy *Painted Lady* butterflies which have flown in from North Africa, while in less favourable years, you will be very lucky to see even one. The Painted Lady, the most energetic and indomitable of our butterfly travellers, has on more than one occasion, reached Iceland. On the years when they appear in Caithness, they very soon catch the eye, sitting open-winged sunning themselves (often on thistle flowers), because they are so large and colourful, and also because their flight is so strong and swift — when seen hawking about the very tops of tall trees, they resemble fly-catching bats! The females lay their eggs on thistle leaves where the spiky blackish caterpillars will feed.

Many other different types of butterfly can be found enjoying the sun and shelter from the wind in the forest clearings but so far I have not found any that are unique to this area. However, the pretty little Chequered Skipper butterfly, feared lost from England completely, recently mysteriously reappeared in young coniferous forests in the west of Scotland, so it is always worth watching for new species.

From this small taste of what is likely to be found in various parts of the country, it can be seen that Caithness is a very rewarding place to study moths and butterflies. In fact, species not normally thought to occur so far north are regularly being discovered, making the subject particularly exciting.

Although butterflies tend to be creatures of summertime, moths can

be found all year round, for there are many especially adapted to come out on murky overcast autumn and winter nights, as can be seen by the names of the Winter moth, the November moth and the December moth for example.

The butterflies and moths I have mentioned are simply a few representatives. There are many, many more waiting to be found and enjoyed in all parts of Caithness.



emperor moth



small copper butterfly



six spot burnet moth



vapourer
moth
caterpillar



magpie moth

BIRDS

For the visiting birdwatcher Caithness does not have the immediate appeal of Orkney, or the dramatic impact of much of the north coast of Sutherland. Too often it is overcast, cold and windswept; conditions as unfavourable to bird life as to birdwatchers, since birds, like humans do not expose themselves to wind and cold unnecessarily. First impressions can be misleading, however, for there is a wealth of bird life to be discovered and far more diversity of habitat than might be expected.

The county is bordered on two sides by the sea and this long coastline has great variation, ranging from low rocky stretches and sandy bays to magnificent cliffs and jutting headlands. The sea is rich in marine life and this combination makes for great variation of bird populations as well, so that there is always something of interest to see on the coast. In summer the cliffs support some of the finest seabird colonies in Britain with thousands of Guillemots, Razorbills and Kittiwakes breeding. There are plenty of Puffins too, but these are not always so obvious since they breed in burrows in the cliffs. Some of these auk colonies are difficult of access and the cliffs are dangerous but the colony situated below Dunnet Head lighthouse is easy to see and gives a good impression of the constant noise and excitement attendant on these colonies during the breeding season. The bird cliffs at Duncansby Head can be visited by boat from John O'Groats, tides and weather permitting. Besides the auks there are Fulmar petrels in every available nook and Shags nesting on ledges in the geos. Black Guillemots, or Tysties, can be seen off some headlands and their clear whistling call can startle a cliff dwelling wren or a party of Rock Doves. The cliffs are constantly patrolled by Great Skuas on the lookout for a quick meal and a few pairs of these piratical birds are now nesting on Dunnet Head together with a few pairs of the more elegant Arctic Skua, though the main colonies of these are inland in the "flow" areas of the moorland. The headlands of Dunnet, Duncansby and Noss are great places for sea watching in late summer, when there are often passages of skuas and shearwaters as well as a constant movement of

Gannets through the Pentland Firth. Other birds to look for round the cliffs are Jackdaws and a motly collection of hybrid crows since Caithness is in the overlap area for Carrion and Hooded Crows. There are still a few Ravens and Peregrines around but these are very rare now.

The cliffs become deserted by the auks in late summer and there is more of interest along the rocky shore where the winter flocks of waders build up. The tideline forms an important feeding area for these birds and Turnstones, Purple Sandpipers, Dunlin and Ringed Plover are common birds along the shore.

The gull population has increased greatly in the last decade and Herring, Great Black-backed, Common and Black-headed gulls are everywhere. The harbours are always good places to birdwatch and Wick Harbour in particular, has had some of the rarer visitors such as Ivory Gull and even a Ross's Gull in the winter months. Both Glaucous and Iceland Gulls are common winter visitors and occasionally an immature bird will stay over into summer.

The other summer visitors to the coast are the terns. There used to be quite large tern colonies on some of the beaches but numbers have declined recently with increased disturbance during the breeding season. There is a large colony of Arctic Terns on the island of Stroma, and the owner quite rightly forbids visitors disturbing the birds.

Away from the coast the other area rich in bird life is the unique region of moorland which stretches from mid-county westwards to the Sutherland border. This region of peatbog with its series of dhu lochans interspersed with drier heathery areas, forms a plateau area at about 150m and carries a relatively high density of breeding waders and duck. Dunlin, Greenshank and Curlew all breed in this area and Teal and Widgeon, together with a small number of Scoter, breed by the small lochans. Some of the larger lochs have Greylag Geese and Red-throated Divers. This whole area is sensitive to disturbance and sadly it is slowly, piecemeal, but apparently inexorably being eroded by Forestry, Peat extraction and drainage. Most of the area is privately owned and utilised as Grouse moor and deer forest and is difficult of access.

In the south of the county there are wooded straths and these hold our few woodland birds such as Tree Pipits, Redstarts and Bullfinches. The only common warbler is the Willow Warbler but Chaffinches and Greenfinches abound in the agricultural country and the Forestry plantations have many Coal Tits, Wood Pigeons and Goldcrests.

Caithness has had a good variety of rare migrants over the years,

including Hoopoe, Long-billed Dowitcher, Roller and Pallas's Warbler to mention just a few and it is always worth keeping a look out for these exotic species when the weather conditions are right!

LIST OF SOME OF THE COMMONER BIRDS TO BE SEEN IN CAITHNESS

<i>Great Northern Diver</i>	Winter visitor mainly to the larger bays, such as Dunnet, Thurso and Sinclair's Bay.
<i>Red Throated Diver</i> <i>Black Throated Diver</i>	Small breeding population at suitable lochs, but the birds are very vulnerable to disturbance. Both species can be seen on the sea in spring and early summer, and are particularly frequent in Sinclair's Bay.
<i>Fulmar</i> <i>Gannet</i>	Now abundant round the cliffs at most times of the year. Common off-shore in summer and large numbers can be seen on migration from headlands such as Dunnet, Noss and Duncansby.
<i>Shag</i>	Common round most of the coast, breeding in caves and on sheltered cliffs.
<i>Cormorant</i>	Less widespread than shags, with breeding restricted to colonies at the Ord of Caithness and some stacks off the coast.
<i>Grey Heron</i>	Recently re-established as a breeding species and frequenting both inland and coastal waters.
<i>Mute Swan</i> <i>Whooper Swan</i>	Small resident population on Lowland freshwater lochs. Winter visitor from October onwards, and form flocks which vary from family parties to several hundred birds.
<i>Grey Lag Goose</i>	Small resident population which is augmented in the autumn by migrant birds when flocks can build up to hold several thousand individuals. Their winter numbers vary with the availability of food and local weather conditions.
<i>Wigeon</i> <i>Mallard</i> <i>Teal</i>	Fairly common resident duck breeding on both moorland and lowland lochs. Winter flocks build up on the larger lowland lochs such as Loch Watten, and birds may feed on the sea in hard winter.
<i>Tufted Duck</i>	Small resident population with a more restricted distribution than previous species.
<i>Pochard</i> <i>Eider</i>	Winter visitor to larger lowland lochs. Common round most of the coast at most times of the year, either in small parties or larger flocks of 50-100 birds.
<i>Long Tailed Duck</i>	Winter visitor to larger bays with a build up of numbers in the spring preparatory to migration to the Arctic.
<i>Golden Eye</i>	Winter visitor usually preferring more sheltered waters (such as Wick river estuary) and often on fresh water lochs.
<i>Red Breasted Merganser</i> <i>Hen Harrier</i>	Frequent on both fresh and salt water. Small breeding population which is augmented by migrants in the autumn.
<i>Buzzard</i>	Increasing slowly and found in small numbers in both wooded areas and at some coastal sites.
<i>Sparrowhawk</i>	Restricted to wooded areas.

<i>Kestrel</i>	The commonest bird of prey. Present in most habitats.
<i>Peregrine</i>	Still very scarce following the decline in the 1950s and 1960s.
<i>Red Grouse</i>	Numbers very variable and birds are restricted to moorland areas.
<i>Pheasant</i>	Introduced several times for sporting interests and now well established.
<i>Oystercatcher</i>	All these birds, members of the wader family, are common as breeding birds of the agricultural land and rough grazing.
<i>Lapwing</i>	
<i>Redshank</i>	
<i>Ringed Plover</i>	
	Favours sandy beaches, but in the breeding season can be found on shingle river banks or sandy loch margins, well inland.
<i>Curlew</i>	Common bird of both agricultural ground and moorland. More coastal distribution in winter where flocks feed and roost on the shore or in adjacent fields.
<i>Golden Plover</i>	Common breeding bird of the uplands with large flocks on the agricultural ground during migration.
<i>Dunlin</i>	Common small wader of the uplands and flow areas of the moors. Coastal in winter.
<i>Turnstone</i>	Winter visitors to the rocky shores.
<i>Purple Sandpiper</i>	
<i>Arctic Skua</i>	Summer visitors. The Arctic Skua breeds in scattered colonies in the flow areas. Both species parasitize on other birds forcing them to disgorge food. The Great Skua or Bonxie will often follow the St. Ola on its journey across the Pentland Firth.
<i>Great Skua</i>	
<i>Black Backed Gull</i>	All are abundant and apparently increasing. They are common on agricultural ground, rubbish tips and in towns, as well as at more traditional sites.
<i>Herring Gull</i>	
<i>Common Gull</i>	
<i>Great Black Backed Gull</i>	
<i>Lesser Black Backed Gull</i>	A less common summer visitor.
<i>Kittiwake</i>	Plentiful as a summer visitor, breeding in large colonies at well established cliff sites.
<i>Sandwich Tern</i>	All are summer visitors and breed in both coastal and inland sites in varying numbers and erratic distribution.
<i>Arctic Tern</i>	
<i>Common Tern</i>	
<i>Guillemot</i>	Form large breeding colonies at established sites, such as Dunnet Head, Clett Rock and Duncansby Head. Both these species can be badly affected by oil pollution.
<i>Razor Bill</i>	
<i>Puffin</i>	
<i>Black Guillemot</i>	
	Resident small local population, best seen by Noss Head and off Holborn Head.
<i>Rock Dove</i>	Restricted to sea cliffs and caves.
<i>Wood Pigeon</i>	Abundant and probably increasing, due to increase in forestry.
<i>Collared Dove</i>	Now well established in towns and farm steadings.
<i>Swift</i>	Regularly seen on migration and breeds in small numbers in Thurso.
<i>Skylark</i>	Abundant and wide spread.
<i>Swallow</i>	Summer visitor and passage migrant.
<i>House Martin</i>	Summer visitor now always associated with human habitation and quick to establish fresh colonies at new housing estates.
<i>Meadow Pipit</i>	Widespread and abundant.

<i>Rock Pipit</i>	Resident population restricted to coastline.
<i>Pied Wagtail</i>	Widespread and fairly common with autumn numbers augmented by migrants.
<i>Robin</i>	A common bird of both deciduous and conifer woodlands in summer, with a more widespread distribution during the winter.
<i>Dunnock</i>	Fairly common and widespread in suitable habitat.
<i>Wren</i>	Present in woodland, agricultural regions and on sheltered cliff faces.
<i>Wheatear</i>	One of the earliest spring migrants arriving in early April.
<i>Blackbird</i>	Very common and widespread.
<i>Song Thrush</i>	Rather restricted distribution in wooded areas.
<i>Field Fare</i>	Migrant thrushes arriving in autumn often in large numbers.
<i>Redwing</i>	Their length of stay into winter is dependent on local weather conditions.
<i>Willow Warbler</i>	The only common warbler of the county, arriving in late April and preferring the more wooded regions.
<i>Blackcap</i>	All occur as regular passage migrants.
<i>Garden Warbler</i>	
<i>Chiffchaff</i>	
<i>Goldcrest</i>	Resident in forestry areas and is also a regular passage migrant.
<i>Blue Tit</i>	Formerly restricted to wooded areas in the county but now common and widespread in conifer plantations and town gardens.
<i>Coal Tit</i>	
<i>Great Tit</i>	
<i>Spotted Flycatcher</i>	Summer visitor and passage migrant.
<i>Jackdaw</i>	Common and widespread.
<i>Carrion/Hooded Crow</i>	Common and widespread — Hybrid forms are present.
<i>Rook</i>	Common and widespread in agricultural ground with several large rookeries.
<i>Starling</i>	Common and widespread. Huge flocks build up in the autumn with an influx of migrant birds, and these roost in plantations, on buildings or on cliffs.
<i>House Sparrow</i>	Common and widespread.
<i>Chaffinch</i>	Common in forestry plantations and on agricultural ground.
<i>Greenfinch</i>	
<i>Twite</i>	Fairly common, often forming large flocks on arable land in winter.
<i>Yellow Hammer</i>	Common bird of the hedgerows.
<i>Reed Bunting</i>	Common and widespread in suitable habitat.
<i>Snow Bunting</i>	Winter visitor in fluctuating numbers from a few individuals to several hundred birds.

We apologise most sincerely for having the wrong bird check list printed. Please note that this is the correct and up to date list for the County, of the most commonly seen birds. It is by no means a complete list.



Cormorant stands with spread wings, to dry out its feathers.



Arctic Skua in pursuit of tern — it gives up only when the tern drops its fish.



Great Skua in flight shows bold white patch on wing.

PREHISTORIC CAITHNESS

The period of human habitation in Caithness extends back some 6000 years, and it is a district rich in the remains of the past. There are still antiquities to be discovered and recorded which have so far remained unnoticed, despite the large number of surveys already carried out. Most sites are scheduled as ancient monuments and it is an offence to damage them. For this reason great care must be taken not to dislodge stonework. Unauthorised digging is forbidden and of course metal detectors are taboo. Access to some sites, which are usually sign-posted, is unrestricted, but in general it is advisable to seek permission before making a visit. Visitors will usually find that landowners are most helpful and can often offer interesting information. Whilst little evidence now remains the first settlers in Caithness who arrived, probably in the period before 4000 B.C., were the Mesolithic hunters and fishers and some evidence has been found for their existence in shell middens along the coast at places such as Freswick and Keiss.

The first incomers for whom we find abundant evidence are the Neolithic, or new stone age, people. They were the first farmers who arrived in about 3000 B.C. and there are plentiful remains of their burial places in the form of chambered tombs. Earlier than the pyramids of Egypt, these often large, mounds of stone cover a passage leading to a burial chamber in the centre. The best preserved examples are signposted at Camster close to the road between Watten and West Clyth. Closest to the road is the round cairn having a low passageway about 7m long with a lintelled roof. This leads to the burial chamber which is divided by large vertical slabs into three sections. Most of the interior is in its original state with dry masonry and the construction of the chamber is corbelled to enable it to be enclosed by a single capstone. Further from the road is the long horned cairn. This cairn has recently been excavated and reconstructed. Two entrance passages, leading to burial chambers, may be found in the south-east surrounding wall. They are similar in construction to the round cairn. A noticeable feature of this cairn is its enormous size when compared with the area of the burial chambers themselves. Also characteristic of

this cairn is the “horned” structure on each end — a feature found in the construction of a number of cairns in the north of Scotland.

The remains of many other chambered cairns are to be seen in Caithness, often dominating the summits of some of the hills and clearly seen against the skyline. Another good site to visit is Cnoc Freiceadain, on the road between Shebster and Forss. This is signposted from the road, and the remains of two long cairns may be seen. From the top of the hill a fine panoramic view presents itself with the Pentland Firth and the islands of Orkney in the north, the distant hills of Sutherland in the west, and the plains of Caithness in the south.

Burial customs changed round about 2000 B.C. when a new group of people, the bronze age metal workers arrived. Instead of the large cairns the dead were buried in cists constructed by using upright stone slabs forming a box in the ground and covered with a large capping stone. These people brought with them improved agricultural methods and were also responsible for setting up the standing stones, many of which can still be seen today. Sometimes these huge upright stones occur singly, in pairs or in rings. The best preserved and most impressive setting is at Achavanich close to the shore of Loch Stems-ter. Here over thirty stones are set out in a horseshoe pattern, open at the southern end with the axis lying almost north and south. Large gaps between some of the stones indicate that originally there may have been over fifty stones in the setting.

Examples of isolated large standing stones may be seen by the roadside on the Georgemas to Latheron road. Good examples are to be found behind the post office at Latheron. Some of the most intriguing settings of stones are to be found in the stone rows. These are usually fan-shaped settings of rows of small stones, sometimes only just visible above the surrounding vegetation. They are often difficult to find and are easily overlooked so much so that undiscovered sites are still coming to light. There are now known to be over twenty such settings, but they have only been discovered in Caithness and Sutherland. The best example to visit is that at Mid Clyth signposted off the A9 road south of Wick as the “hill o’ many stanes”. Here there are some two hundred small stones firmly set in the ground in long fan-shaped rows. Although the purpose of such settings of stones is unknown, it has been demonstrated by Professor Thom that they could have an astronomical purpose in association with the movements of the moon. Other writers suggest that they may have had a ceremonial or ritual purpose.

In about the 6th century B.C. Caithness saw the incoming of the iron

age settlers. They settled in the areas of good well-drained arable land. Circular foundations, the remains of their dwellings may still be found here and there. These are the people who built the hill and promontory fortifications, examples of which are to be found on the top of Beinn Freiceadain near Dorrery and on the headlands at Holborn Head and St John's Point.

The iron age people were also responsible for the building of the brochs at about the time of 150 B.C. - 150 A.D. These were defensive structures built in more troubled times. Although there are remains of about 150 brochs in Caithness, the best example is to be seen on the island of Mousa in Shetland. This is a drystone built circular tower some 12m high and about the same in diameter. There is a single entrance leading to a circular courtyard inside, with a well and a fireplace. Above the base the walls are hollow with a spiral stairway leading to the top of the tower. Apart from the entrance, which could easily be blocked from the inside, there are no other openings in the outer wall. The height and structure of these buildings would have made them virtually impregnable by an enemy.

The best broch sites to visit in Caithness are east of the A9 road at Ousdale and northwards along the foreshore from Keiss harbour. Many other examples may be seen as grass-covered mounds. Although brochs are known locally as "Pict's Houses", and some maps indicate them as "Pictish Towers" the Pictish period did not begin until about 250 A.D. By this time more peaceful times had emerged and many of the brochs had been dismantled to create dwellings around the outside. The origins of the Picts are shrouded in mystery but evidence for their existence in Caithness is to be seen in the sculptured stones they left behind. The earliest, having incised designs, date from the 7th century. They include symbols depicting birds, animals and abstract shapes. Later stones have the designs carved in relief with the addition of the Christian cross. They are often highly decorated with intricate interlacing designs. Later still in about the 10th century the Pictish symbols disappear completely from the stones and only the decorative Christian crosses remain.

There are two carved stones in the Thurso museum. The earliest one comes from Ulbster, south of Wick. The designs are carved in local sandstone with, in the centre, an equal-armed cross mounted on a pedestal. Below the cross is depicted an animal with large paws and above it a cow. Two men are shown kneeling by the sides of a cauldron and below them a serpent. On the other side of the stone is another cross with other animal and abstract designs. The other Pictish stone in

the museum is that which came from the chapel site at Skinnet near Halkirk. Although badly damaged, it has most elaborate carving on both sides in relief. The design includes a cross on each side together with animal and abstract symbols.

Whilst it is not certain who brought Christianity to Caithness nor exactly when, there are many remains of the early church. The best preserved example is the chapel of St Mary at Crosskirk. This is signposted off the A836 road at Forss. Now roofless, the chapel dates from the 12th century. It has both nave and chancel. The entrance at the western end is similar to others found in Orkney and Shetland and in the early oratories of Ireland. On the seaward side of the chapel near the edge of the cliff is the site of an iron age broch suggesting that this is an area which has been inhabited over a long period of time.

Gilbert Murray, Bishop of Caithness, is said to have founded a church in Thurso in about 1220. This was on the site of Old St Peter's church near the harbour. Although what remains today is a multi-period structure with the nave and transepts dating from the 16th or 17th century, the small vaulted apsidal cell in the base of the tower may date from the 13th century. It is similar to the 12th century chapel of St Margaret in Edinburgh Castle. The tracery of the window in the south transept is worthy of note.

Viking invasions into Caithness started in the 9th century. Whilst there are known Viking settlements as for example at Freswick, there is little for the visitor to see. Ample evidence of the Vikings is to be found in the place-names. There are numerous place-names ending in -bster such as Scrabster and Lybster which derive from the Old Norse *bolstathr*, meaning a homestead. Thurso and Wick derive from the Old Norse 'thjors-a' meaning bull river and 'vik' a creek or bay. Around the coast are numerous geos and cletts deriving from 'gja', a narrow inlet and 'klettr' a sea stack.

It is to the Vikings that we most attribute some of the earliest historical records written in the Viking Sagas of the 12th and 13th centuries. The Orkneyinga Saga, available in modern translation, has numerous references to that early part of Caithness history.

Caithness is a district rich in the remains of its prehistoric past with much for the interested visitor to see. At the same time, whilst supporting its traditional industries, it is in the forefront of the modern technological world and is likely to remain so.



The Ulbster Stone.

THE CASTLES OF CAITHNESS

The history of the castles of Caithness can be traced back to the twelfth century when the early Norse invaders who had been colonising the northern and western coasts of Scotland for the three previous centuries began erecting stone-built towers to safeguard and dominate their settlements. These early castles were extremely rough and simple in form. Usually built on a peninsula protected by a deep “goe” or inlet of the sea on either side, their situation was indeed spectacular and desolate. Having selected a site the first operation was to cut a deep ditch across at the neck of the peninsula, thus separating the site from the mainland. Immediately beyond the ditch the keep was built with its near wall rising sheer from the edge. The castles were square or rectangular towers of three or four storeys in height with walls anything from three to eight feet thick varying according to the impregnability or otherwise of the site. With only one room on each floor the average interior measurements were something like twenty feet by sixteen feet. There were no chimneys or windows although here and there the walls were pierced with arrow slits or observation loops. The different floors were of wood resting on wooden joists which in turn were laid on scarcements formed by narrowing the walls by about six inches at each storey level. The doorway always faced the sea, was placed at first floor level and entered by a portable ladder. The ground floor or basement was used for cellarage or storage purposes only and access to it was gained by a trap door from the floor above. Only a very narrow slit served to light it.

The great hall or main living room was always the first floor apartment — at doorway level — and here the only fire usually reposed on a great stone slab laid on the wooden floor, the smoke simply curling up the wall through a vent into the room above and then again by the same process finally through the roof. A spiral stone stairway in the thickness of the wall opening from the entrance passage gave access to each floor.

The drawbridge over the ditch was set to one side to allow access past the keep to the courtyard beyond where on either side there would

be a range of outbuildings or retainers' quarters. The castle and its outbuildings invariably occupied the whole surface of the peninsula.

Castles which generally fall into this early era category are — Oldwick (O.S. reference — ND370489), Forse (ND224338), Bharraich (NC581568), all of which are fairly substantial ruins. Other castles of the very early type but of which some fragments remain are Berriedale (ND121224), Castle Gunn (ND308386), Brough (ND228741), Borve (NC724643) and Castle Mestag, Stroma (ND340764).

At Braal (ND136600) the castle there is of the same style of architecture but being possibly a century later it is more sophisticated in form having fireplaces, chimneys and windows, but the doorway is still on the first floor and a straight stairway in the wall leads to the upper floors. It stands on low ground close by the River Thurso from which a water filled moat surrounded the castle. Achastle (ND116227) of which only fragments remain is a later but still unvaulted keep. It is situated in a very strong and picturesque position above the point where the Rivers Langwell and Berriedale meet. At Dirlot (ND126487) fragments of a fourteenth century keep is perched on top of a high rock near the River Thurso. Very small, measuring only eighteen feet by ten feet its walls are six and a half feet thick. At Latheron (ND199334) a seven feet thick fragment of walling is all that is left of the castle there.

By the thirteenth century vaulting became established in Scottish castle architecture and in Caithness the earliest recorded vaulted castle is Dunbeath (ND158283). Built on a rock projecting into the sea it is vaulted on one floor only. It dates from 1428 and is still occupied. Vaulted castles being almost completely safe from fire the builders now brought the doorway down to ground floor level. The structures were larger — oblong on plan with measurements of something like sixty feet by twenty feet with walls five feet thick. There was now as many as four apartments on the ground floor but the great hall upstairs could well take up the whole first floor. Spiral staircases in the thickness of the walls gave access to each floor. Two other fifteenth century castles Ackergill (ND353547) and Girnigoe (ND378549) are vaulted on two floors. Ackergill slightly the older is still occupied. It stands beside the sea on a low shore and was once surrounded by a moat with water flowing in from the sea. The vaulted great hall extends over the whole first floor and is twice the height of a normal room with a minstrel's gallery halfway up the wall at one end. The old tower stands five storeys high and its nine feet thick walls are laced with

intramural passages and stairways. There is a twenty four feet deep well under the floor of what is now the main entrance.

Historically Girnigoe is the most important and also the most grandly situated castle in Caithness. Built between 1475 and 1496 it stands on a long narrow peninsular rock. Protected by two dry ditches, one at the neck of the peninsula and another half-way along. Behind the second ditch stands the old keep consisting of the main block with two wings extending behind. A vaulted passage penetrates the structure from front to back emerging on to the courtyard behind where there were two ranges of buildings, now much ruined. Within the main building there is a small secret chamber in the deep vaulting of the kitchen ceiling, and a grim dungeon in the rock underneath the floor. A sea entrance with steps going through a cave to the shore can be seen near the outer point of the peninsula. On the outer ward of Girnigoe between the two ditches, in the area where the fortified gateway, portcullis and guardrooms stand there was built in 1606 the new and finely constructed wing known locally as Castle Sinclair. Last occupied in 1690 when the castle withstood a siege in which firearms or artillery was used in Caithness for the first time it has since been allowed to fall into ruin.

When firearms came into use in the sixteenth century castle architecture was changed to meet the new threat to their security. Still vaulted, built square or rectangular, but now with a wing or "jamb" attached to one corner loopholed in such a way to give musketeers a vantage point to sweep the castle approaches with firepower. This was known as the L plan. Later two wings were attached to the diagonally opposite corners of the tower — thus giving all round protection. This was the Z plan castle. Examples of L plan castle are Brims (ND043710), Dounreay (ND983670). Z plan castles are represented by Keiss (ND357616) and Mey (ND289739).

There is one example of a castle of enciente, now reduced to the merest fragment. Built by William 2nd Earl — the builder of Girnigoe — Knockinnon (ND181315) was intended to command the approaches to Caithness from Sutherland and the south. In a castle of enciente — a thirteenth century conception — a great curtain wall was built, and along this wall various parts of the castle was built. A great fortified gatehouse — a strong keep which usually stood at the point furthest away from the gateway, and around the area the various offices — the smithy, bakehouse, chapel, stables, retainers' quarters, etc. were ranged along the wall.

There are two castles in Caithness which belong to two periods —

the Norse era and the middle ages. These are Scrabster (ND107692) and Bucholie — anciently Lambaborg (ND382658). Both castle were founded in the Norse occupation era the latter by Sweyn the noted Viking and pirate. Both were completely reconstructed in the fifteenth century. Scrabster became the seat of the Roman Catholic Bishops of Caithness while Lambaborg — renamed Bucholie — was for over two centuries the home of the Mowat family.

At Thurso East (ND124689) three castles have risen on the same site in three centuries. The first, built by George the 6th Earl was demolished by his successor George the 7th Earl, during the time that Campbell of Glenorchy had usurped the Earldom. The second was demolished to make way for the third — now itself an honourable ruin. Thurso East had, for the last two and a half centuries been the home of the Sinclairs, Baronets of Ulbster and Viscounts Thurso.

THE FLAGSTONE INDUSTRY IN CAITHNESS

To the tourist and casual visitor alike the term 'flag' could readily be taken to mean some form of banner to wave or to decorate the arena at a Highland Games, but to a Caithnessian a flag constitutes something less exciting but more durable — a large thin slab of stone. The word flag comes from the old Norse 'flaga', a slab. However the tourist could not fail to notice the many flagstone fences which compartment the green areas of lowland Caithness and give the district a most distinctive landscape.

The quarrying of flagstones was once the major industry of Caithness. Nowadays the only quarries still in operation are to be found in the Parish of Halkirk. The fact that much of the rock which underlies Caithness possesses the curious property of readily splitting into thin large slices (or flags) has been known for many hundreds of years although it has only been exploited commercially since the early years of the last century. Archaeological excavations at Skara Brae have shown that even as far back as 2500 B.C. thin slices of stone were used for building construction and making furniture, and at the recently excavated and restored Grey Cairns of Camster one may see the use of the flat stones in the construction of the cairn bases and the distinctive "horns". A closer look at many of the ruined crofts around the county would reveal the use of flagstone for flooring, roofing, byre stalls, wells, water tanks, cupboard shelves and even clothes posts.

To find the reason why this useful stone should split quite easily we have to go back into the mists of geological time. The flagstone was formed initially as layers of sediment in the bed of a great lake (called Lake Orcadie by geologists) which covered a large area of the north of Scotland some 370 million years ago. Successive periods of laying down of sediment and the intervening long dry spells gave the stone its laminated structure which makes it split so readily into flags. The great weight of overlaying layers of rock made the flags dense, hard and durable. Entrapped in the stone beds are many varieties of fossil fish — the original inhabitants of the great lake.

The rude pieces of flagstone used by our early inhabitants for building houses and stone walls would have been obtained at outcrops where the rock broke through to the surface and required little or no quarrying. Despite this early use of flag, the first attempt to obtain the stone on a commercial basis was made at Castlehill, on the shore of Dunnet Bay to the north of the village then known as Olrig, when in the summer of 1793 several cargoes of stone were shipped to Aberdeen. The instigator of this new industry was James Traill, who lived from 1758-1843 and was for a time Sheriff of the County. He moved from Rattar to Castlehill House in 1824 and set about organising the flagstone quarrying.

In the following year regular shipments of flags were begun to ports all over the United Kingdom and as the fame of this most useful material spread, cargoes were sent as far afield as South America. A famous meat factory in the Argentine was floored with Caithness flags. Indeed in a booklet published in 1877 by the Caithness Flagstone Quarrying Company it is stated that "after a trial of upwards of 50 years on the footpaths etc of the principal towns in England, Scotland, Ireland, the Colonies and South America it has proved itself to be one of the best paving stones known". This booklet also lists customers in Bombay, Calcutta, Dunedin, Melbourne and Sydney. The high wear resistance was greatly prized and made the stone especially useful for pavements and courtyards. The Strand was paved and the concourse of Euston Station laid with flags.

As the industry prospered other proprietors took up the trade and quarries were opened at Weydale, Janetstown, Achscrabster, Holborn Head and Spittal, and in the year 1899, 23,000 tons were produced. This was bettered however in 1902 when output rose to 35,000 tons. When operations were at their height over 1000 men were in employment in the industry which ranked second only to the Aberdeen granite output in terms of annual tonnage. The flagstones were cut or 'dressed' by sawing them with heavy iron saws using rough sand as an abrasive. These saws were at first powered by water-wheels but were later replaced by steam engines. Bogie tracks were laid down to ease the movement of the stone to the cutting yards, such as the one from Weydale to Thurso East. Some cutting was done at the quarries, eg Spittal and Achscrabster, and by 1900 there were three large yards at the mouth of the Thurso river. The largest quarry and cutting complex was at Achscrabster, west of Thurso. Much of the stone from Spittal was transported south by rail from Georgemas Junction.

The industry was known by many as "the pavement trade" and was

unique to this part of Scotland. A similar type of quarrying was carried out in Forfarshire in the early 19th century but the stone was not as hard or durable and was used more for ornamental work.

Quarry workers' wages were poor and the work dangerous: in 1866 there was a strike for more money which resulted in the workers being paid by the square foot. By the 1914-1918 War output had fallen to about 5000 tons per year. Just before the war there were big pay-offs and many workers emigrated to Canada. Special trains were run to convey them to their sailing points. Shortly after arrival in Canada they enlisted in the Canadian-Scottish regiments and returned to Europe to fight in Flanders and elsewhere. Of the few who survived most returned to their native Caithness on demobilisation. After the war, with the increased cost of transport and higher wages, the industry fell into decline. In the 1920s most of the quarries closed down when synthetic stone was introduced. (For example, in 1939 the cost of flag in Edinburgh was 12/6d per square yard as against 4/6d for a concrete paving block of the same size.)

In 1949 Spittal quarry was reopened and good quality, almost black, cut and polished flagstone became available once again. This time, however, the cutting and polishing was done by a more sophisticated method employing diamond cutters and burrs. The flags produced were used in some of the new buildings in Thurso and at the Atomic Energy Authority's site at Dounreay. They also served as coffee table tops, stones for fireplace hearths and mantelpieces while the reddish/grey blocks from Achanarras quarry formed an attractive facing. Thus the revived industry continues on a small scale at Spittal and Acharole near Halkirk where small roofing flags are being produced for the reconstruction of historic houses in Kirkwall and Stromness. At present Spittal quarry is working on a consignment of pavement for a Department of the Environment project at the Palace of Holyroodhouse in Edinburgh.

So as you travel round Caithness you can play an "I Spy" game and look out for the famous flagstone and its many uses.

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Cover plate:

Sinclair & Girnigoe Castle, by Shirley Barnaby, taken from the William Daniell Aquatint, published in 1821.


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